

## Claims

- [1] A composition for stabilizing Epigallocatechin gallate (EGCG) in water phase comprising 0.1~25.0% by weight of Epigallocatechin gallate, 0.1~5.0% by weight of a cationic polymer, an anionic polymer or a mixture thereof, 0.1~10.0% by weight of antioxidant, and water or the mixture of water and a hydrophilic solvent in a remainder.
- [2] The composition according to claim 1, which contains said hydrophilic solvent in an amount of 10~30% by weight.
- [3] The composition according to claim 1 or 2, wherein said composition is solidified by spray drying process or lyophilizing process.
- [4] The composition according to claim 1 or 2, wherein said cationic polymer is selected from the group consisting of chitosan, lysine, arginine, cystine, polyethylenimine, polyvinylpyrrolidone cationic copolymer, polymethylmethacrylate copolymer having quaternary ammonium and styrene copolymer having quaternary ammonium, and said anionic polymer is selected from the group consisting of polyethyleneoxide, polyethyleneglycol, polypropyleneglycol, polypropyleneoxide, monosaccharide, polysaccharide, cellulose, gelatin, hyaluronic acid, alginic acid, sodium alginate, starch, starch oxide and carboxymethylcellulose.
- [5] The composition according to claim 1 or 2, wherein said antioxidant is selected from the group consisting of tyrosine, triptopan, Alpha-lipoic acid, vitamin C and its derivatives, vitamin E and its derivatives, vitamin A and its derivatives, sodium sulfite, and sodium disulfite.
- [6] The composition according to claim 1 or 2, wherein said hydrophilic solvent is a polyhydric alcohol.
- [7] The composition according to claim 6, wherein said polyhydric alcohol is selected from the group consisting of ethylene glycol, propylene glycol, diethylene glycol, dipropylene glycol, dibutylene glycol, glycerin, 1,3-butanediol and sorbitol.
- [8] A method for preparing the water-in-stable composition according to claim 1 comprising following steps of:
  - (1) forming an aqueous Epigallocatechin gallate solution by means of dissolving Epigallocatechin gallate in water or the mixture of water and a hydrophilic solvent;
  - (2) forming a mixture by means of adding and mixing a cationic polymer, an anionic polymer or a mixture thereof to said aqueous Epigallocatechin gallate solution at a room temperature; and

(3) adding an antioxidant to the mixture, wherein the composition contains said Epigallocatechin gallate in an amount of 0.1~25.0% by weight, said cationic polymer, said anionic polymer or said mixture thereof in an amount of 0.1~5.0% by weight, said antioxidant in an amount of 0.1~10.0% by weight, and water or the mixture of water and a hydrophilic solvent in a remainder.

- [9] The method according to claim 8, wherein said step (1) includes steps of firstly dissolving said Epigallocatechin gallate in a hydrophilic solvent and secondly dissolving said Epigallocatechin gallate in water, wherein said hydrophilic solvent is contained in an amount of 10~30% by weight.
- [10] The method according to claim 8 or 9, wherein said cationic polymer is selected from the group consisting of chitosan, lysine, arginine, cystine, polyethylenimine, polyvinylpyrrolidone cationic copolymer, polymethylmethacrylate copolymer having quaternary ammonium and styrene copolymer having quaternary ammonium, and said anionic polymer is selected from the group consisting of polyethyleneoxide, polyethyleneglycol, polypropyleneglycol, polypropyleneoxide, monosaccharide, polysaccharide, cellulose, gelatin, hyaluronic acid, alginic acid, sodium alginate, starch, starch oxide and carboxymethylcellulose, and said antioxidant is selected from the group consisting of tyrosine, triptopan, Alpha-lipoic acid, vitamin C and its derivatives, vitamin E and its derivatives, vitamin A and its derivatives, sodium sulfite, and sodium disulfite, and said hydrophilic solvent is polyhydric alcohol.
- [11] The method according to claim 10, wherein said polyhydric alcohol is selected from the group consisting of ethylene glycol, propylene glycol, diethylene glycol, dipropylene glycol, dibutylene glycol, glycerin, 1,3-butanediol and sorbitol.
- [12] A cosmetic composition containing the water-in-stable composition according to claim 1 as an active ingredient.
- [13] A pharmaceutical composition containing the water-in-stable composition according to claim 1 as an active ingredient.
- [14] A food composition containing the water-in-stable composition according to claim 1 as an active ingredient.